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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,832	07/17/2006	Sang Kee Kim	3449-0587PUS1	7309
2292 7590 04/01/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
JACKSON JR, JEROME				
ART UNIT		PAPER NUMBER		
2815				
NOTIFICATION DATE		DELIVERY MODE		
04/01/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

**Application No.**

10/565,832

**Applicant(s)**

KIM ET AL.

**Examiner**

Jerome Jackson Jr.

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-08)
- Paper No(s)/Mail Date 1/25/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

Figures 1-3b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3,5,8-13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3 "transparent electrode are disposed at a region excepting contact portions of the first electrode" is vague and indefinite of exact structure. The language is confusing and it is not clear what "region" is intended. In claim 5 "provided at a plurality of partition regions excepting regions...." is vague and indefinite of exact structure. What "regions" and what is "excepting portions"? Claim 8 is vague and indefinite. Claim 9 is rejected as there is no proper antecedent for "the edges". Claim 10 is vague and indefinite "is disposed to space apart from one another" and "along an upper edge...at which the first electrode is disposed". There is no proper antecedent for "upper edge" etc. and the language is confusing. Claim 11 is vague and indefinite structure and

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ungrammatical. What is the "region" of claim 12? What is the structure of claim 12? In claim 13 "concavo-convex" is either broad or vague and indefinite. There is no standard "concavo-convex" shape. Claim 16 is rejected as SiO<sub>2</sub> is not a transparent electrode material.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21, as best understood, are rejected under 35 U.S.C. 102(a,e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tarsa 6,614,056.

Tarsa discloses in figures 1-11, for example, a GaN based device with transparent electrodes 18 or 92 spaced apart from one another by gap regions at first

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electrode 22 or 97, in plan view. The device is GaN based with first, active, and second gallium nitride based layers as shown, for example, at 15, 14 and 16. Claims 1-3 are rejected. The transparent electrodes can be labeled "stripe shapes" spaced apart from one another by gaps, and are not disposed at "contact" portions of the first electrode 21/22 or 95/97. The claims are broad.

Claim 5 is rejected as the finger electrodes 20 or 94 connect the plurality of transparent electrodes to second electrode 19 or 91. Clearly the transparent electrodes are not at the same regions or occupy the same space as the second electrodes 19 or 91.

Claim 6 is rejected as there are first finger electrode portions 96 at edges of the diode.

Claim 7 is rejected as connection units or finger electrodes 20 or 94 are metal films (col.5 line 29-33).

Claim 8 is rejected as no two fingers have the same exact resistances. There are no exact resistances claimed to unequivocally distinguish over Tarsa.

Claim 10 is rejected as the transparent electrodes are spaced and located along an upper edge of the diode.

Claim 11 is rejected as the transparent electrodes are across or face each other.

Claim 12 is rejected as figure 1 shows a step shape.

Claim 13 is rejected as figures 8 or 11 show a "concavo-convex" shape.

Claims 15-17 are rejected as practicing a stripe shaped mask to form the transparent electrode shapes is obvious. Column 5 lines 50-54 disclose conventional etching.

Claims 18-21 are rejected as above.

Claims 4 and 14 are considered obvious as p-n-p or n-p-n structure for light emitting devices with the same contact scheme as Tarsa are fundamentally obvious. Applicant has basically admitted NP or NPN structure is fundamentally obvious. A bipolar structure or diode structure is obvious for a contact scheme as Tarsa.

Claim 9 is obvious as Tarsa states the thickness of the fingers or transparent layers can be 50nm or equivalently 0.05micron. See columns 5 and 6.

Claims 1-21, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarsa in view of Katayama 6,903,374.

Katayama suggests further layers of GaN based materials for cladding, and electrodes 28 and 29 of the same thickness. See figure 6. It would have been obvious to have practiced cladding layers in Katayama to improve device efficiency, and finger and transparent electrodes of the same very small thickness to allow more light to escape. Claims 4, 9 and 14 are obvious structure.

Claims 1-21 as best understood, are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Katayama 6,903,374.

See Katayama figures 3 and 6, the corresponding text, and the discussion above on clad layers and electrode thickness. The various "stripes" of transparent electrodes

in figure 3 are spaced apart. In regard to claims reciting electrodes at an "edge", such design is obvious from applicant's prior art admissions (fig.3b) and would have been obvious for Katayama to decrease resistance. Claims reciting step shape or concavo-convex are obvious from figures 2,3,4 or 7 of Katayama broadly showing such structure. Method claims are obvious as Katayama discloses photolithography and etching to form the device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571-272-1730. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Jerome Jackson Jr./

Primary Examiner, Art Unit 2815